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MODIFIED DUKE SCORE BY CORONARY COMPUTED TOMOGRAPHY ANGIOGRAPHY IS ASSOCIATED WITH ABNORMAL CHOLESTEROL MORE THAN CORONARY CALCIUM SCORE ALONE

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Background: Coronary artery calcium score (CACS) measures subclinical coronary artery disease (CAD). The modified Duke score (MDS) is a score of coronary stenosis derived from coronary CT angiography (CCTA) that predicts cardiovascular (CV) outcomes. There are few studies that compare CAD risk factors and biomarkers with MDS in asymptomatic patients.

Methods: 377 asymptomatic patients in the High Risk Plaque study were evaluated using CCTA. Using a 16-segment convention for the coronary tree, MDS was calculated (high MDS defined as >3) and CACS was measured for each patient. They were then analyzed against traditional CV risk factors of the Framingham Risk Score.

Results: Patients with high MDS were more likely male (82.76% vs 54.86%, p<0.001), older (>70 years 50% vs 31.66%, p=0.01), had lower HDL (46.12±9.61 vs 55.67±15.63, p<0.001), higher triglycerides (188.77±132.46 vs. 150.98±74.47, p=0.002) and higher CACS compared to patients with low MDS. Age, sex, and HDL were significantly associated with MDS and CACS, while blood pressure, LDL, total cholesterol, and smoking showed a significant correlation with CACS, but not with MDS. In multivariate analysis, after adjusting for CACS, MDS was not associated with traditional predictors of CAD.

Conclusion: Asymptomatic patients with obstructive CAD are older and have lower HDL and higher triglyceride levels. An elevated CACS is the strongest predictor of CAD severity in asymptomatic patients when compared to conventional risk factors and serum biomarkers.

Table. Association of Modified Duke Score with important predictors of CAD (bivariate and multivariate analysis) and comparison with calcium score

	High MDS		Calcium score
Clinical predictors of CAD	Bivariate analysis	Logistic regression	Bivariate analysis
Age	**R=0.142, p=0.006**	**OR 1.60 (1.16-2.41) p=0.006**	**R=0.250, p<0.001**
Adjusted for calcium score		OR 1.26 (0.88-2.04) p=0.29	
Sex	**R=-0.201, p<0.001**	**OR 3.95 (1.93-8.08) p<0.001**	**R=-0.223, p<0.001**
Adjusted for calcium score		OR 2.15 (0.93-4.98) p=0.07	
Mean BP systolic	R=0.066, p=0.201	OR 1.01 (0.99-1.02) p=0.11	**R=0.125, p=0.02**
Mean BP diastolic	R=0.03, p=0.54	OR 1.01 (0.98-1.04) p=0.30	R=0.036, p=0.47
Smoking	R=0.054, p=0.29	OR 1.29 (0.72-2.30) p=0.38	**R=0.155, p=0.03**
Diabetes	R=-0.016, p=0.75	OR 0.78 (0.17-3.51) p=0.74	R=0.034, p=0.50
Total cholesterol	R=-0.06, p=0.22	OR 0.99 (0.98-1.004) p=0.42	**R=-0.11, p=0.03**
HDL	**R=-0.245, p<0.001**	**OR 0.94 (0.91-0.96) p<0.001**	**R=-0.20, P<0.001**
Adjusted for calcium score		OR 0.97 (0.93-1.002) p=0.055	
LDL	R=-0.04, p=0.44	OR 0.99 (0.99-1.01) p=0.70	**R=0.125 p=0.02**